State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

FINAL REPORT
EVALUATION OF POND REARING OF CHINOOK SALMON
PROJECT (5.12)

by

JACK A. HANSON

Klamath River Project, Inland Fisheries Division

Inland Fisheries

1990

FINAL REPORT
FOR
PROJECT (5.12)

EVALUATION OF POND REARING OF CHINOOK SALMON

A. Abstract:

A total of 205,579 brood year (BY) 1988 fall chinook salmon produced at Iron Gate Hatchery (IGH), and to be reared to yearling size in rearing ponds located on five Klamath River tributaries were marked with an adipose fin clip and tagged with a coded-wire tag (AD+CWT) prior to being transferred. Future tag recovery will be used to evaluate the contributions to the fisheries and spawning escapement made by the fish released from the rearing ponds.

B. Introduction:

Since 1979, the California Department of Fish and Game's Klamath River Project has marked (Ad+CWT) various groups of fingerling chinook and yearling chinook and coho salmon at IGH, plus several cooperative pond-rearing program locations, prior to their release into the Klamath River and its tributaries. Fish for the pond-rearing program are hatched and reared at IGH. They are transferred to the rearing-ponds in May or June as fingerlings, ranging in size from about 200 to 70 per pound. The purpose of this marking is to help evaluate the contributions these fish make to the ocean commercial and sport, river sport and net fisheries, and to spawning escapement. The evaluation is required for effective management of the Klamath River's salmon resources.

C. Description of Study Area:

The Klamath River system drains approximately 12,000 sq. mi. of northwestern California and southern Oregon. It is the second most important fall chinook salmon producer in California. Major salmon spawning tributaries are the Trinity River, Salmon River, Scott River, Shasta River and Bogus Creek. Natural reproduction is augmented by two hatcheries, Iron Gate Hatchery at the foot of Iron Gate Dam on The Klamath River, and Trinity River Hatchery,located at the base of Lewiston Dam on the Trinity River. Salmon rearing ponds are operated by local organizations on several small tributaries that historically had spawning runs of chinook salmon. Since 1978, the numbers of fall chinook salmon returning to the Klamath system have ranged from a low of about 53,800 adults in 1984 to a high of about 236,700 in 1986.

The pond-rearing program is funded by a grant from the Renewable Resources Investment Fund to the Northern

California Indian Development Council, Inc.. The ponds are located on Bluff Creek at rivermile (rm) 48.6; Redcap Creek, rm 52.7; Elk Creek,rm 105.5; Indian Creek, rm 106.7; and Grider Creek, rm 130.3.

D. Methods and Materials:

Under the supervision of a permanent California Department of Fish and Game, Klamath River Project biologist, temporary employees marked (Ad+CWT) all or portions of the 1988 (BY) fall chinook salmon scheduled to be transferred in 1989 from IGH to five rearing ponds. Recoveries will be made during ongoing investigations of the ocean and inriver fisheries, at Project weirs in the Klamath River tributaries, and at the two basin hatcheries (these activities are not part of this project). Recoveries from areas outside California will be obtained from other agencies collecting CWT fish.

E. Results and Discussion:

Fall chinook salmon scheduled to be transferred to the rearing ponds were marked and tagged (Ad+CWT) at Iron Gate Hatchery. A pre-release quality control monitoring and inventory of the fish in the ponds to determine the exact number properly clipped, tagged and released was done just before they were planted. The numbers of fish fin-clipped and tagged, the total numbers transferred from IGH to the five Klamath River rearing ponds, the total numbers properly marked and tagged at time of planting as determined by the quality control tests, and the total numbers planted for each pond in 1989 are summarized as follows:

Pond	No. clipped and tagged	No. stock in pond	No. tagged and planted	Total planted
Red Cap Creek	40,016	40,016	31,285	39,106
Indian Creek	42,209	80,000	33,357	74,402
Bluff Creek	40,806	80,000	33,437	77,955
Grider Creek	41,998	41,998	33,185	37,712
Elk Creek	40,550	32,750[1]	27,340	30,386

The contributions of these fish to the fisheries and spawning escapements will be monitored through the recovery of the CWT.

[1] Approximately 7,800 marked and tagged fish escaped from the hatchery before they were transferred to the rearing ponds invalidating the study for this pond.

F. Summary and Conclusions:
Part or all of the chinook salmon reared over summer in five Klamath River rearing ponds were marked (Ad+CWT) prior too their being transferred to the ponds from IGH.

G. Summary of Expenditures:

Salaries, including benefits	$2,452
Travel and transportation	1,083
Supplies, including tags	8,640
Overhead	2,751
Total	$14,926

H. Supplemental Data: Not applicable to this project.

Prepared by: Jack A. Hanson Date: 3/15/90
Jack A. Hanson